Vermont Mental Health Performance Indicator Project

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MEMORANDUM

TO: Vermont Mental Health Performance Indicator Project Advisory Group and Interested Parties

FROM: John Pandiani, Christine Van Vleck

DATE: October 4, 2002

RE: Regional Variation in CRT Mortality Rates

This PIP continues our examination of mortality rates for recipients of mental health services in Vermont, and elsewhere. Copies of previous reports in this series are available at http://www.state.vt.us/dmh/Data/PIPs/Ordered_by_pages/mortality.htm. This week's report examines regional variation in mortality rates for people in treatment for severe and persistent mental illness in Vermont. This report was prepared in response to a request for further analysis from Boyd Tracy (NAMI VT) after our examination of service recipients' relative risk of mortality for different causes of death (http://www.state.vt.us/dmh/Data/PIPs/2002/pip030802.pdf).

The data used in this analysis were drawn from two sources. The Vital Records Mortality Database, maintained by the Vermont Department of Health, provided information on all Vermont residents who died during the study period. The Monthly Service Report database, maintained by DDMHS, provided information on all recipients of CRT services during the study period. Because these data sets do not share unique person identifiers, Probabilistic Population Estimation was used to determine the number of people receiving CRT services who died during the treatment year or the following year. These two-year mortality rates were calculated for all clients served in each of six base years and averaged in order to account for year-to-year variation in mortality rates.

In order to reduce the impact of differences in the caseloads of the ten regional programs, the caseload of each program was case mix adjusted. Since age and gender are among the most important risk factors for mortality, our case mix adjustment procedure involved dividing the caseload of each program into 8 groups defined by age (four groups) and gender. The mortality rates for people in each of these 8 groups were determined. Finally, each of these rates was multiplied by the proportion of the statewide CRT caseload for each group, and the results were summed for each program. The resulting risk adjusted outcome measure is a fairer measure of program performance because it controls for differences in the caseloads of the different programs. This procedure is described in more detail in a recent issue of the *Journal of Behavioral Health Services and Research* [1].

As you will see, average two-year mortality rates for CRT clients served during 1992 through 1997 ranged from 4.3% to 0.8% before age and gender case mix differences were taken into account. After case mix differences were taken into account, the range of mortality rates decreased but differences among programs were still statistically significant. Four CRT programs (Chittenden, Lamoille, Northeast, and Southeast) had adjusted mortality rates greater than 3% while two other programs (Addison and Orange) had mortality rates of 1.5% or less.

We look forward to your comments, questions, and suggestions for further analysis, including suggestions for other factors that could help account for differences in mortality rates among CRT programs in Vermont. Your responses to pip@ddmhs.state.vt.us or 802-241-2638 will be welcomed.

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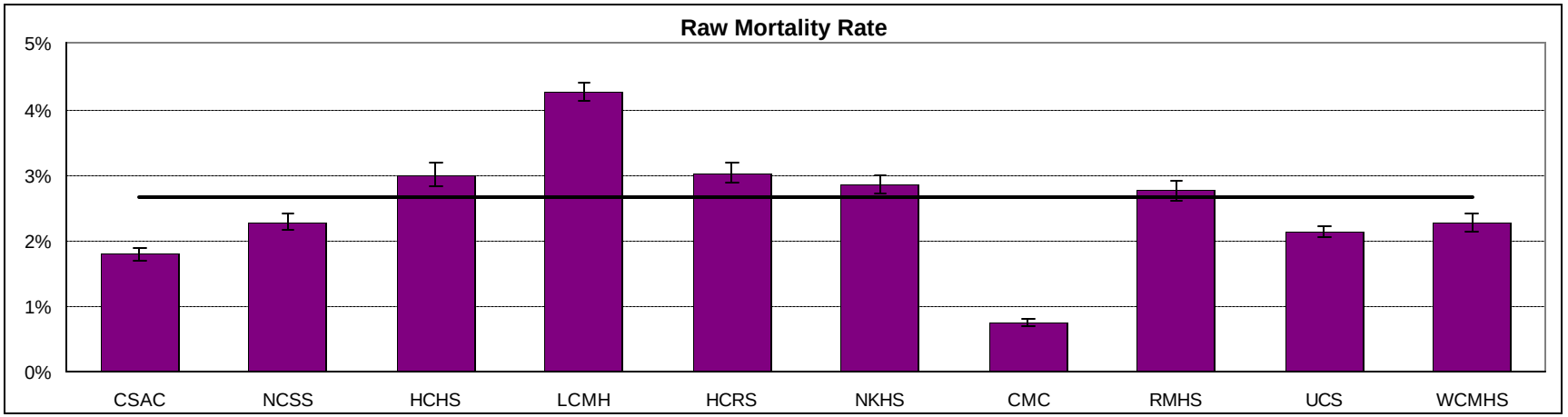
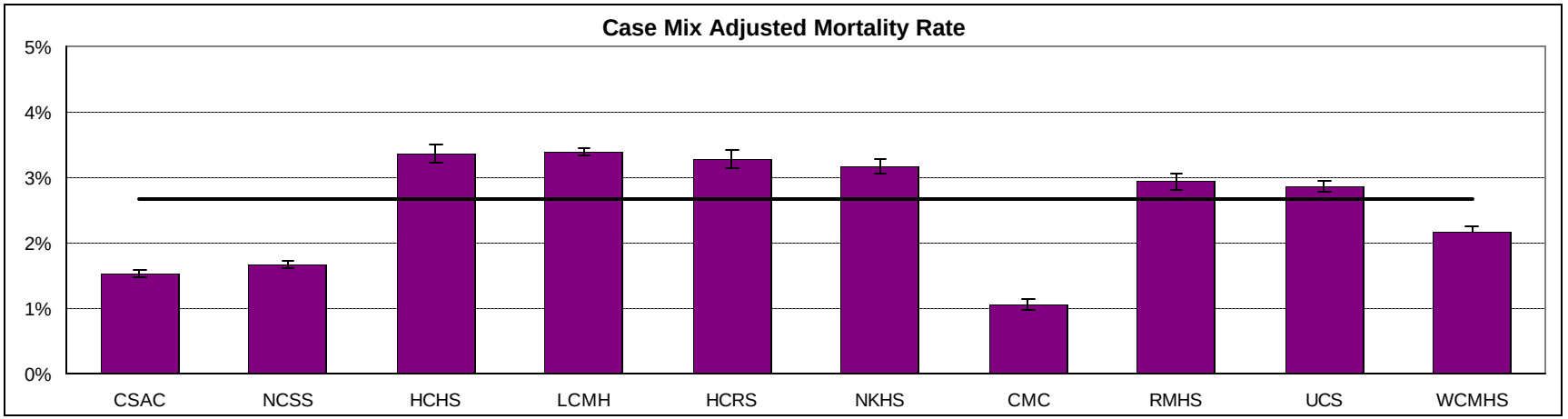
[1] Approaches to Risk Adjusting Outcome Measures Applied to Criminal Justice Involvement after Community Service. *Journal of Behavioral Health Services and Research*. 2001 (Banks, Pandiani, and Bramley)

Average Mortality Rate for CRT Clients
During the Year of Treatment or Subsequent Year: 1992-1997
Raw and Case Mix Adjusted Mortality Rates





Clinic	Statewide	CSAC Addison	NCSS Northwest	HCHS Chittenden	LCMH Lamoille	HCRS Southeast	NKHS Northeast	CMC Orange	RMHS Rutland	UCS Bennington	WCMHS Washington
# Served	3,003	129	192	580	129	358	450	98	283	206	579

Mortality Rate

Raw	2.7% + 0.06%	1.8% + 0.09%	2.3% + 0.13%	3.0% + 0.19%	4.3% + 0.13%	3.0% + 0.16%	2.9% + 0.14%	0.8% + 0.06%	2.8% + 0.15%	2.1% + 0.09%	2.3% + 0.14%
Adjusted	2.7% ± 0.06%	1.5% ± 0.09%	1.7% ± 0.09%	3.4% ± 0.20%	3.4% ± 0.09%	3.3% ± 0.17%	3.2% ± 0.15%	1.0% ± 0.09%	2.9% ± 0.14%	2.8% ± 0.10%	2.2% ± 0.14%

The number served is an average of the 6 treatment years, 1992-1997. Adjusted mortality rate is case mix adjusted based on the age and gender distribution of CRT clients.

Because data sets used in this analysis do not share unique person identifiers, Probabilistic Population Estimation was used to calculate the number of clients who died in the year of treatment or the subsequent year (with 95% confidence intervals).